

FISHES OBSERVED AT THE THREE KINGS ISLANDS, NORTHERN NEW ZEALAND

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Abstract. Ninety-two species of fishes, representing 46 families, are recorded from the Three Kings Islands. An area influenced by both ocean surface water movements and cold water upwelling, the Three Kings region is characterised by a mixture of forms, with either warm or cold water affinities. Significant northward range extensions are noted for *Pseudolabrus cinctus* and *Pseudophycis barbatus*.

The majority of fish species listed here have been identified from visual and photographic records made during many summer SCUBA dives over the period 1982-86, as well as from specimens collected at poison stations, and by suction gun and handline, in late 1983 and early 1986. Some commercial species, taken in the immediate vicinity of the Three Kings Islands, are also included. It is clear that additions will be made to this list from time to time, as rarer species and/or occasional visitors to the Three Kings Islands are recorded. Nevertheless, it is hoped that the majority, if not all, of the fish species resident to depths of 46 m have now been noted. Any deeper resident fauna is largely unknown, although the bythitid, *Monothrix consobrinus*, was trawled from 173-178 m by R.V. *Tangaroa*, in 1981, and the creediid, *Limnichthys rendahli*, was reported from 117 m (as *L. fasciatus*), as early as 1926 (by Rendahl 1926).

A number of undescribed species, predominantly in the family Tripterygiidae, have been included in the list. Most of these species are well known by divers, and where appropriate, have been accorded the notation and common names given by Ayling (1982).

In the following list, an asterisk (*) or dagger (†) indicates that voucher specimens are held in the research collections of the National Museum of New Zealand, Wellington, (NMNZ) or the Auckland Institute and Museum, Auckland, respectively.

A total of 92 species, representing 46 families, are recorded.

LIST OF FISHES AT THREE KINGS ISLANDS

Family Hexanchidae		
	* <i>Notorynchus cepedianus</i> (Peron, 1807)	Broad-snouted seven gill shark
Family Lamnidae		
	<i>Carcharodon carcharias</i> (Linnaeus, 1758)	Great white shark
Family Triakidae		
	<i>Mustelus lenticulatus</i> Phillipps, 1932	Spotted smooth hound (rig)
Family Carcharhinidae		
	<i>Galeorhinus galeus</i> (Linnaeus, 1758)	School shark
Family Squalidae		
	<i>Squalus blainvillei</i> (Risso, 1826)	Grey spiny dogfish (northern dogfish)
Family Dasyatidae		
	<i>Dasyatis brevicaudatus</i> (Hutton, 1875)	Short-tailed stingray
	<i>Dasyatis thetidis</i> Waite, 1899	Long-tailed stingray
Family Myliobatididae		
	<i>Myliobatis tenuicaudatus</i> (Hector, 1877)	Eagle ray
Family Muraenidae		
	* <i>Gymnothorax nubilus</i> (Richardson, 1848)	Grey moray
	<i>Gymnothorax obesus</i> (Whitley, 1932)	Speckled moray
Family Congridae		
	<i>Conger verreauxi</i> Kaup, 1856	Common conger eel
	* <i>Conger wilsoni</i> (Bloch & Schneider, 1801)	Northern conger eel
Family Moridae		
	†* <i>Pseudophycis barbatus</i> Gunther, 1863	Southern bastard cod
	†* <i>Pseudophycis breviusculus</i> (Richardson, 1846)	Northern bastard cod
	* <i>Lotella rhacinus</i> (Bloch & Schneider, 1801)	Rock cod
Family Bythitidae		
	* <i>Brosomphyciops</i> sp.	Orange brotula
	* <i>Monothrix consobrinus</i> (Hutton, 1876)	Grey brotula
	*? <i>Monothrix</i> sp.	
Family Gobiesocidae		
	* <i>Dellichthys morelandi</i> Briggs, 1955	Urchin clingfish
	* <i>Trachelochismus melobesia</i> Phillipps, 1927	Striped lumpfish
	* <i>Trachelochismus pinnulatus</i> (Bloch & Schneider, 1801)	Lumpfish
Family Trachipteridae		
	* <i>Trachipterus</i> sp.	Dealfish
	A single planktonic juvenile collected	
Family Trachichthyidae		
	* <i>Optivus elongatus</i> (Gunther, 1859)	Slender roughy
	* <i>Paratrachichthys trilli</i> (Hutton, 1876)	Common roughy
Family Berycidae		
	* <i>Centroberyx affinis</i> (Gunther, 1859)	Golden snapper
Family Zeidae		
	<i>Zenopsis nebulosus</i> (Temminck & Schlegel, 1845)	Mirror dory
	<i>Zeus faber</i> Linnaeus, 1758	John dory
Family Syngnathidae		
	* <i>Hippocampus abdominalis</i> Lesson, 1827	Seahorse
	* <i>Lissocampus filum</i> (Gunther, 1870)	Short-snouted pipefish

Family Scorpaenidae	
<i>Helicolenus</i> sp.	Sea perch
†* <i>Scorpaena papillosa</i> (Bloch & Schneider, 1801)	Red scorpion fish
Family Triglidae	
<i>Chelidonichthys kumu</i> (Lesson & Garnot, 1826)	Red gurnard
Family Callanthiidae	
<i>Callanthias allporti</i> (Gunther, 1876)	Splendid perch
Family Serranidae	
<i>Caesioperca lepidoptera</i> (Bloch & Schneider, 1801)	Butterfly perch
<i>Caprodon longimanus</i> (Gunther, 1859)	Pink maomao
* <i>Ellerkeldia huntii</i> (Hector, 1875)	Red-banded perch
* <i>Ellerkeldia</i> sp. (cf. <i>E. huntii</i>)	Half-banded perch
* <i>Epinephelus daemeli</i> (Gunther, 1876)	Spotted black grouper
Family Percichthyidae	
<i>Polyprion maeone</i> Phillipps, 1927	Bass
† <i>Polyprion oxygeneios</i> (Bloch & Schneider, 1801)	Hapuku
Family Acanthoclinidae	
* <i>Taumakoides littoreus</i> (Bloch & Schneider, 1801)	
* <i>Taumakoides marilynae</i> Hardy, 1985	
Family Labracoglossidae	
†* <i>Bathystethus cultratus</i> (Bloch & Schneider, 1801)	Grey knifefish
Family Carangidae	
<i>Decapterus koheru</i> (Hector, 1875)	Koheru
<i>Pseudocaranx dentex</i> (Bloch & Schneider, 1801)	Trevally
<i>Seriola lalandi</i> Cuvier & Valenciennes, 1833	Kingfish
Family Arripidae	
<i>Arripis trutta</i> (Bloch & Schneider, 1801)	Kahawai
Family Sparidae	
<i>Chrysophrys auratus</i> (Bloch & Schneider, 1801)	Snapper
Family Mullidae	
†* <i>Upeneichthys lineatus</i> (Bloch & Schneider, 1801)	Goatfish, red mullet
Family Pempherididae	
* <i>Pempheris adpersus</i> Griffin, 1927	Bigeye
Family Kyphosidae	
†* <i>Atypichthys latus</i> McCulloch & Waite, 1916	Mado
* <i>Kyphosus sydneyanus</i> (Gunther, 1886)	Silver drummer
* <i>Scorpis lineolatus</i> Kner, 1865	Sweep
* <i>Scorpis violaceus</i> (Hutton, 1873)	Blue maomao
Family Chaetodontidae	
<i>Amphichaetodon howensis</i> (Waite, 1903)	Lord Howe coralfish
Family Pentacerotidae	
<i>Paristiopterus labiosus</i> (Gunther, 1871)	Sowfish
Family Pomacentridae	
* <i>Chromis dispilus</i> Griffin, 1923	Demoiselle
<i>Chromis hypsilepis</i> (Gunther, 1876)	One-spot puller
* <i>Parma alboscapularis</i> Allen & Hoese, 1976	Black angelfish

Family Aplodactylidae	
* <i>Aplodactylus arctidens</i> Richardson, 1839	Marblefish
* <i>Aplodactylus etheridgi</i> (Ogilby, 1889)	Notch-headed marblefish
Family Cheilodactylidae	
<i>Cheilodactylus ephippium</i> McCulloch & Waite, 1916	Painted moki
* <i>Cheilodactylus spectabilis</i> Hutton, 1872	Red moki
† <i>Nemadactylus douglasii</i> (Hector, 1875)	Porae
†* <i>Nemadactylus macropterus</i> (Bloch & Schneider, 1801)	Tarakihi
Family Latrididae	
<i>Latridopsis ciliaris</i> (Bloch & Schneider, 1801)	Blue moki
Family Labridae	
* <i>Coris sandageri</i> (Hector, 1884)	Sandager's wrasse
<i>Pseudolabrus cinctus</i> (Hutton, 1877)	Girdled wrasse
* <i>Pseudolabrus fucicola</i> (Richardson, 1840)	Banded wrasse
†* <i>Pseudolabrus miles</i> (Bloch & Schneider, 1801)	Scarlet wrasse
* <i>Suezichthys aylingi</i> Russell, 1985	Crimson cleanerfish
Family Odacidae	
†* <i>Odax cyanoallix</i> Ayling & Paxton, 1983	Bluefinned butterfish
Family Creediidae	
<i>Limnichthys rendahli</i> Parrott, 1958	Sand diver
Family Mugiloididae	
* <i>Parapercis colias</i> (Bloch & Schneider, 1801)	Blue cod
Family Blenniidae	
<i>Parablennius laticlavus</i> (Griffin, 1926)	Crested blenny
<i>Plagiotremus tapeinosoma</i> (Bleeker, 1857)	Mimic blenny
Family Tripterygiidae	
* <i>Forsterygion varium</i> (Bloch & Schneider, 1801)	Variable triplefin
* <i>Gilloblennius tripennis</i> (Bloch & Schneider, 1801)	
<i>Ruanoho decemdigitatus</i> (Clarke, 1879)	Longfinned triplefin
<i>Ruanoho whero</i> Hardy, 1986	Spectacled triplefin
†* <i>Karalepis stewarti</i> Hardy, 1984	Scaley-headed triplefin
* <i>Notoclinus fenestratus</i> (Bloch & Schneider, 1801)	Topknot
* <i>Notoclinops yaldwyni</i> Hardy, 1987	Yaldwyn's triplefin
<i>Cryptichthys joettae</i> Hardy, 1987	Black-arched triplefin
<i>Bellapiscis lesleyae</i> Hardy, 1987	
*Gen. & sp. indet. (Ayling sp. 2.)	Mottled triplefin
*Gen. & sp. indet. (Ayling sp. 3.)	Yellow-black triplefin
*Gen. & sp. indet. (Ayling sp. 4.)	Oblique swimming triplefin
Family Clinidae	
†* <i>Ericentrus rubrus</i> (Hutton, 1872)	Orange clinid
Family Gempylidae	
<i>Thrysites atun</i> (Euphrasen, 1791)	Barracouta
Family Balistidae	
* <i>Parika scaber</i> (Bloch & Schneider, 1801)	Leather jacket
Family Diodontidae	
<i>Allomycterus jaculiferus</i> (Cuvier, 1836)	Porcupine fish

Discussion

The fish fauna of the Three Kings Is contains elements of both the northern offshore island fauna, and a more southern fauna. Overall, the region has somewhat lower fish species diversity than that seen in the warmer waters of the offshore island groups of the Hauraki Gulf and eastern Northland. Although ninety-two species are recorded, compared with only 76 from the Poor Knights Is (Russell 1971), (including several game fish species) the latter omitted a number of undescribed or unidentified taxa, as well as the more cryptic species.

A recent, unpublished report (Kelly unpubl.) listed 117 fish species from the more extensive Poor Knights Islands Marine Reserve (including game fish and other pelagic species). Although the species list contained in the latter report must still be considered incomplete, as evidenced by its inclusion of only six triplefin species, and a single clingfish, some interesting comparisons can be made. Thirty-five families are common to both the Three Kings Is and the Poor Knights Islands Marine Reserve. Within these families, 77 species are reported from the Three Kings Is compared with 91 from the Poor Knights Islands Marine Reserve. Only 56 species are known to be common to both regions. The most obvious disparity between the two areas is seen in the Labridae (five species from the Three Kings Is; 13 from the Poor Knights Islands Marine Reserve). Because the labrids are more readily observed and collected than some of the more secretive or cryptic families, such numbers probably reflect more realistically, the actual situation, rather than a bias or difficulty in recording species presence or absence.

The presence (or apparent absence) of certain fish species at the Three Kings suggest some interesting, if at times confusing patterns of distribution. Cold upwelling waters, responsible for low temperature and salinity anomalies in the Three Kings region (Stanton 1973), may provide a clue to the presence of the girdled wrasse (*Pseudolabrus cinctus*). However, the occurrence of Sandager's wrasse (*Coris sandageri*) and the crimson cleanerfish (*Suezichthys aylingi*), both northern species of sub-tropical affinities, appears to contradict the absence of other northern wrasses (e.g. *Pseudolabrus inscriptus*, *P. luculentus*) [see also Ward & Roberts 1986]. The absence of the spotty (*Pseudolabrus celidotus*), widespread and extremely common throughout New Zealand coastal waters, is perhaps compensated for by the larger densities of banded wrasse (*P. fucicola*) than are normally seen around the mainland coast. It would seem unlikely that temperature or salinity fluctuations are by themselves responsible for the absence of *P. celidotus*. Ward & Roberts (1986) noted that spotties were not commonly seen in waters of the east Northland offshore island groups.

Considerable northward range extensions are shown here for *Pseudolabrus cinctus* (not previously known north of the Wairarapa coast), and *Pseudophycis barbatus* (previous northern limit Bay of Plenty, Paulin 1983). A single, large bythitid, tentatively identified here as ? *Monothrix* sp., is the second example of this undetermined species recorded in New Zealand, a smaller specimen having been trawled in 107 m off Cape Runaway by R.V. *Tangaroa* in 1979 (NMNZ P. 7830).

A number of workers have noted the cold water affinities of aspects of the fauna and flora of the Three Kings marine environment. Disregarding those species endemic to the region, marine algae are characterised by both temperate and cold water species, resulting from major ocean surface water movements, and cold water upwelling. Especially significant are records of cold water species and some genera (e.g. *Desmarestia*), otherwise not known north of Cook Strait (N.M. Adams, pers. comm.) — a pattern reminiscent of *Pseudolabrus cinctus*. Hurley (1953) regarded the amphipod fauna of the Three Kings as atypical of the surrounding northern waters, having cold water affinities, and similar observations have been made (G.R.F. Hicks, pers. comm.) for harpacticoid copepods.

Although high numbers of individuals were not obvious, the Tripterygiidae (triplefins) is the most widely represented family in terms of species. Each of the 11 species recorded is known also from southern New Zealand, with 7 of them having been collected during a recent survey of the Snares Islands. Clearly, notions of a restricted "northern" tripterygiid fauna in New Zealand (Ayling 1982), are no longer tenable, and the Three Kings' tripterygiid fauna can be considered to comprise species well represented around much of New Zealand. If anything, the triplefin fauna of the Three Kings comprises fewer species than might have been expected, as recent surveys (by G.S.H.) of Fiordland and the Sugarloaf Islands, off Taranaki, have resulted in the collection of 18 triplefin species from each region. In view of its widespread occurrence around New Zealand, having been recorded from the Marlborough Sounds, Kaikoura, and Fiordland, as well as from the Northland east coast and offlying islands, the undescribed "blue dot" triplefin has, surprisingly, yet to be seen at the Three Kings. Other common species around the North and South Is, *Forsterygion capito*, *Notoclinus compressus*, *Bellapiscis medius*, and *Notoclinops segmentatus*, are also unrecorded from the Three Kings. Common wherever they occur, these species may be restricted by nuances of habitat, not yet understood. Other, seemingly ubiquitous species, such as *Gobiopsis atrata*, *Taumakoides rua* and *Odax pullus* are also unrecorded from the Three Kings region, although suitable habitat seems to be present. Indeed, *O. pullus* is replaced at the Three Kings by *O. cyanoallix*, a species known elsewhere only from one specimen photographed at the Poor Knights (Ayling & Paxton 1983) and several seen at Cape Reinga in early 1986 (M.P.F. pers. obs).

Of the serranids observed at the Three Kings, the ubiquitous cold water species, *Ellerkeldia huntii*, is perhaps less commonly observed than an undescribed congener, a reverse of the mainland situation in which *E. huntii* is the more common. Of the other serranids observed at the Three Kings, *Caesioperca lepidoptera* is an ubiquitous species, often locally very abundant at least as far south as the Snares Is, and *Epinephelus daemeli* is now known to extend down the west coast of New Zealand, at least to Westport. The southern splendid perch, *Callanthias* sp. (placed in Callanthiidae following Johnson 1984), known from Fiordland and the Snares Is, is believed to represent a species distinct from the northern *C. allporti*, reported from the Three Kings.

Other species, common throughout north eastern New Zealand waters, but apparently absent from the Three Kings Is, include *Gymnothorax prasinus*, *Chironemus marmoratus*, *Girella tricuspidata*, and *Bodianus vulpinus*. In addition, the subtropical serranids, *Acanthistius cinctus* and *Trachypoma macracanthus*, occasionally seen at the islands off eastern Northland, are also unrecorded.

NOTE ADDED IN PRESS

Roberts (1987) recently recorded for the first time several demersal fish species, including *Pseudophycis barbata* (*sic*), from the North Cape-Three Kings region.

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